

# **NOAA & National Weather Service, a commitment to national drought resiliency through NIDIS**

**A NIDIS Pilot Workshop,  
Peachtree City, GA - April 29, 2008**

**Bill Proenza, Regional Director  
National Weather Service – Southern Region**

**[www.SRH.noaa.gov](http://www.SRH.noaa.gov)**

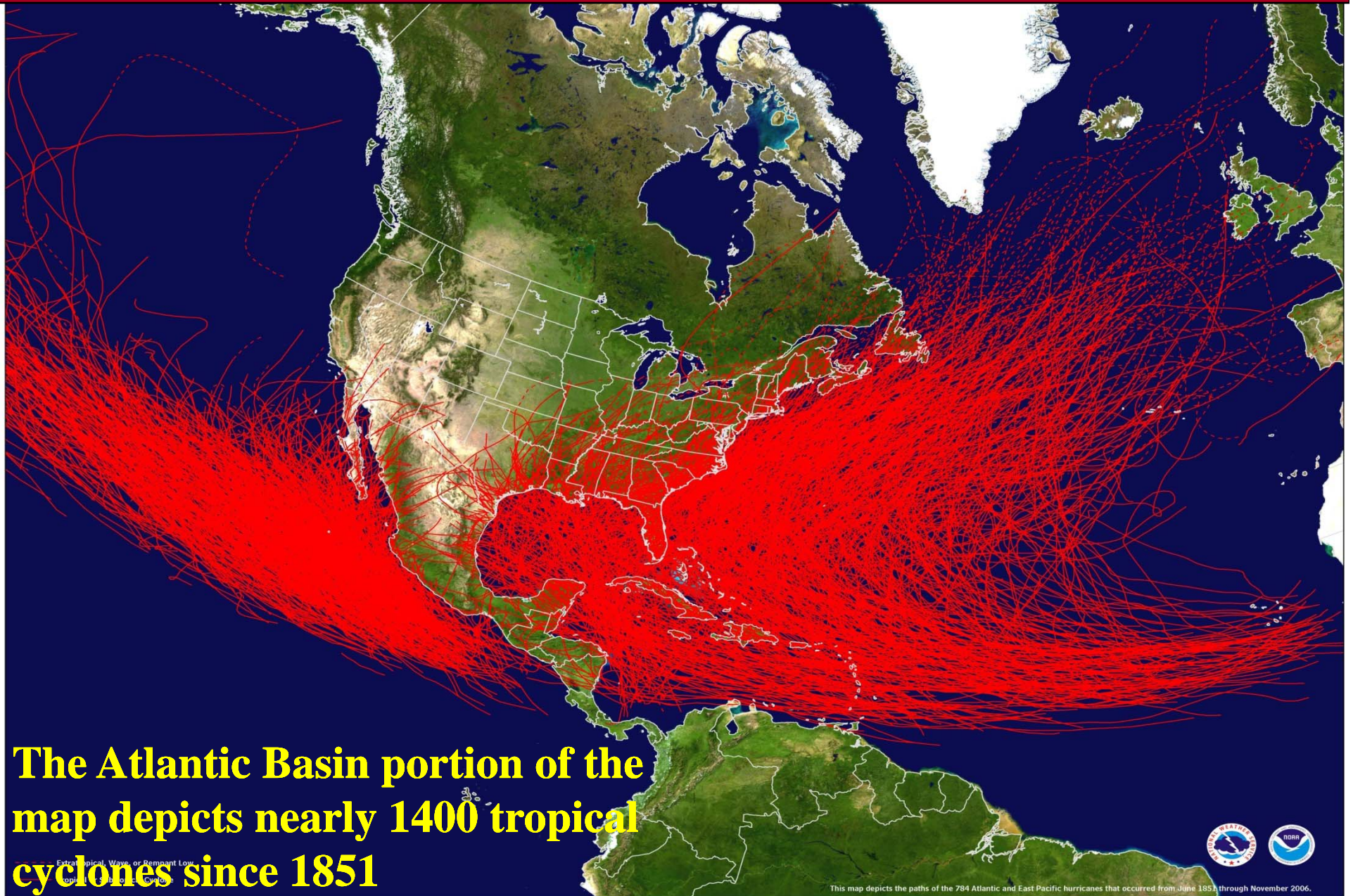
# USA has a severe weather vulnerability

## 7402 Tornadoes in just 6 years !



*The South is a confrontational battleground between continental and tropical air masses !*

# We are a nation with a vulnerability!







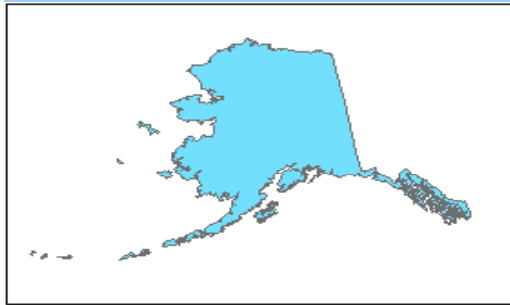
# 2005/2006 Drought and Fires: High Impact on Southern US

NWS Southern Region

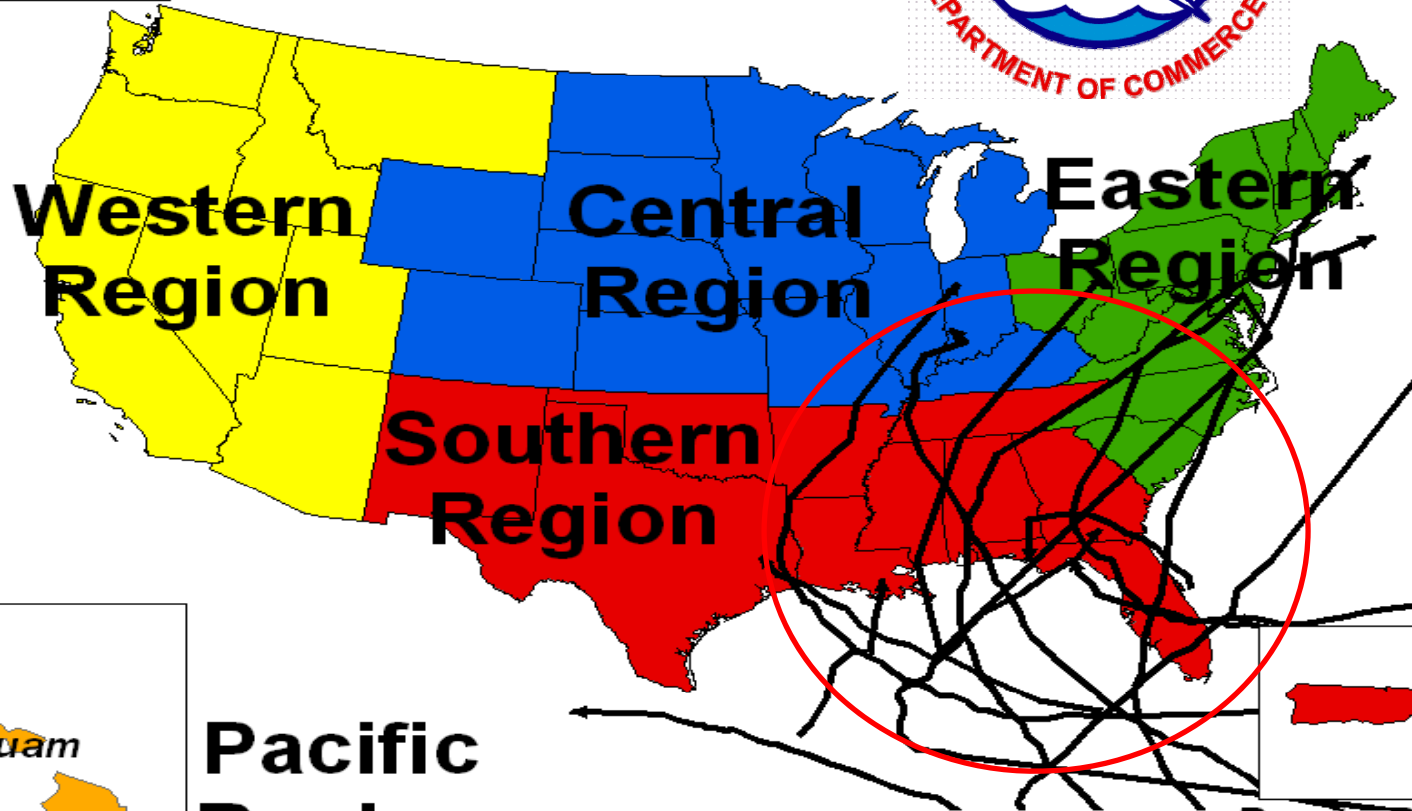
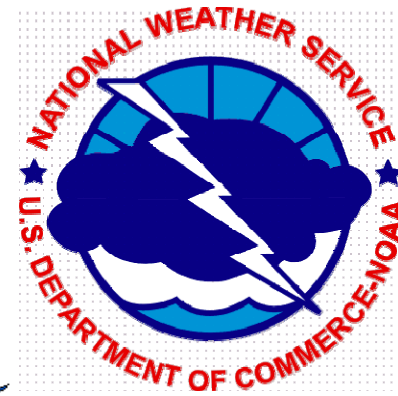
	<b>Fires</b>	<b>Acres Burned</b>	<b>Houses Destroyed</b>
<b>Texas</b>	1873	1,343,914	345 *19 fatalities
<b>Oklahoma</b>	1629	558,383	238
<b>Florida</b>	3287	178,913	42
<b>New Mexico</b>	700	400,000	?
<b>Arkansas</b>	2019	36,670	34

For FL and TX, these are the highest values since the La Nina of 1998.

# NWS has 4 large contiguous Regions and 2 “oconus” Regions



**Alaska  
Region**



**Western  
Region**

**Central  
Region**

**Eastern  
Region**

**Southern  
Region**



*Hawaii and Guam*

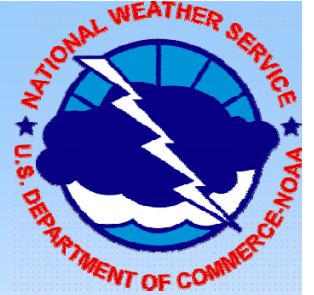
**Pacific  
Region**



*Puerto Rico and  
Virgin Islands*

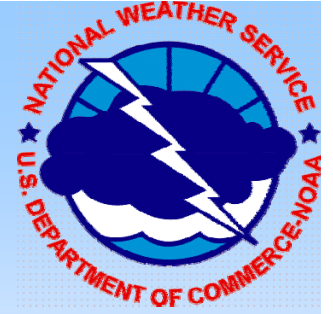
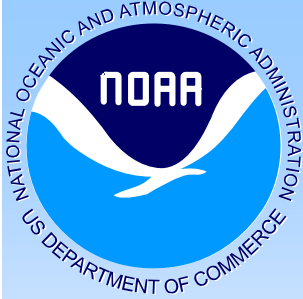


# National Integrated Drought Information System



## Five Objectives Building Our Resilience

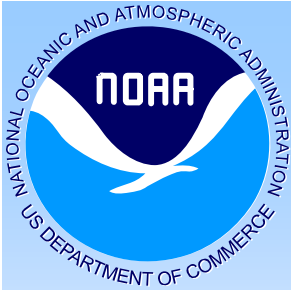
- Leadership and Partnership
- Foster and Support Research
- Early Monitoring & Warning System
- Effective Info/Product Delivery
- Education, Preparedness and Awareness



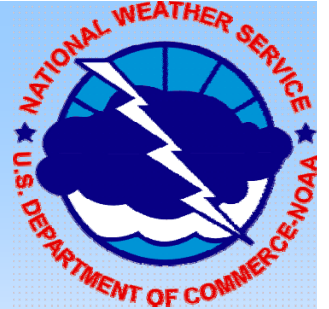
# Drought

## Its Compelling Economics

**–Since 1980, droughts and heat waves have cost the Nation \$178 billion dollars**

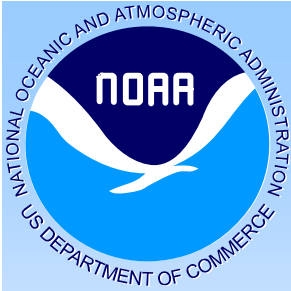


# Recent Droughts in the US

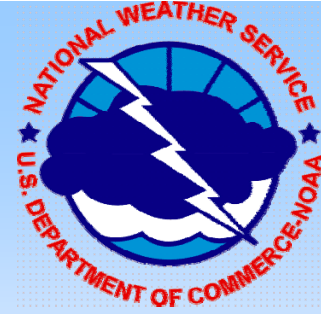


- Droughts can persist into multi-year high impact events
  - Prolonged intensity and duration can occur anywhere but
  - Most prevalent a Western and Southern U.S. phenomena
- Widespread — 66% of U.S. in 2007 in moderate drought at some point (ref: National Drought Monitor)





## Recent Droughts in the U.S.

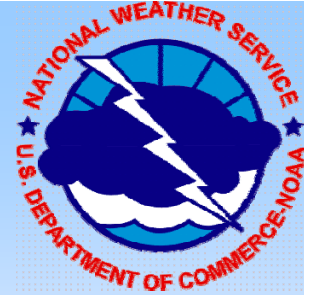


- 1988: \$39.2Billion nationwide
- 1998: \$6-8B across the South
- 2000: \$4.8B across the Plains and South.
- 2002: >\$11.4B across 30 states.
- 2007: >5.0B across the Southeast.

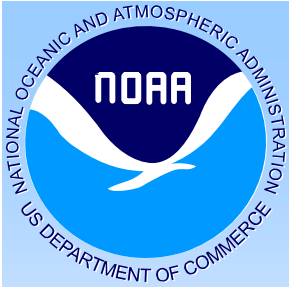
Average annual losses: \$6-8B (FEMA)



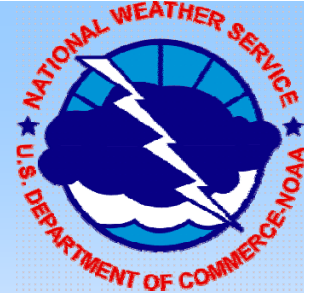
# What is NIDIS?



- Public Law 109-503: “NIDIS shall...
  - Provide an effective drought early warning system.
  - Coordinate and integrate as practicable, Federal research in support of a drought early warning system.
  - Build upon existing forecasting and assessment programs and partnerships.

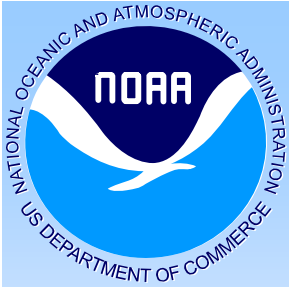


# NOAA's Role in NIDIS

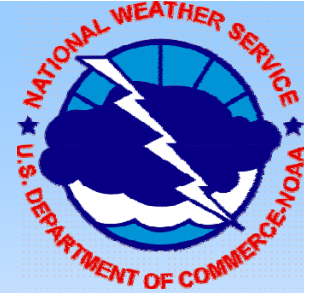


NOAA, "...through the NWS and other appropriate weather and climate (partners) shall form a National Integrated Drought Information System."





# NIDIS Monitoring



## U.S. Drought Monitor Southeast

April 22, 2008

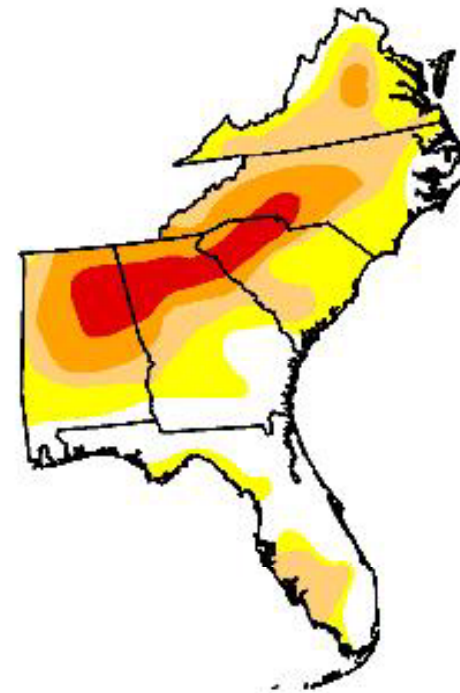
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	26.6	73.4	47.8	24.7	8.9	0.0
Last Week (04/15/2008 map)	29.0	71.0	50.3	29.3	8.9	0.0
3 Months Ago (01/29/2008 map)	7.3	92.7	72.8	57.8	39.2	21.3
Start of Calendar Year (01/01/2008 map)	9.6	90.4	74.3	58.5	41.0	22.0
Start of Water Year (10/02/2007 map)	10.1	89.9	77.9	63.8	45.2	24.0
One Year Ago (04/24/2007 map)	31.3	68.7	57.2	28.5	8.5	0.0

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

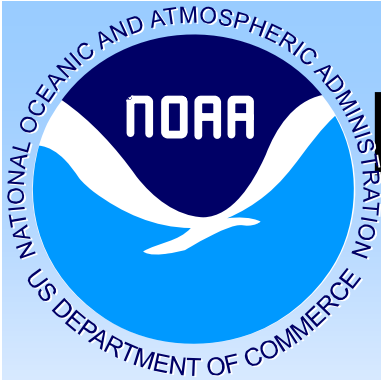


The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

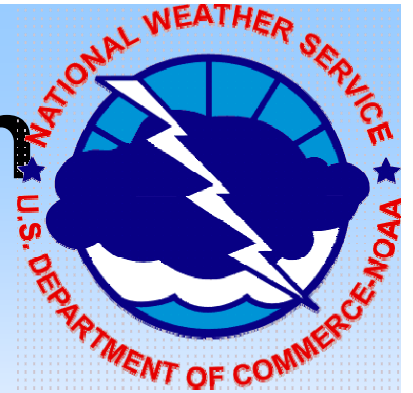
<http://drought.unl.edu/dm>



Released Thursday, April 24, 2008

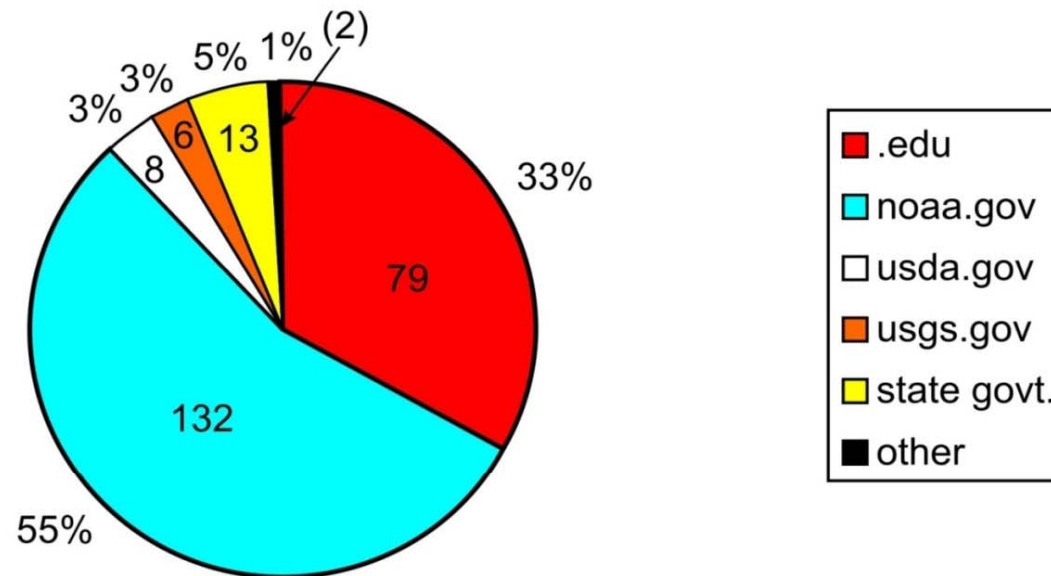


# NIDIS Collaboration



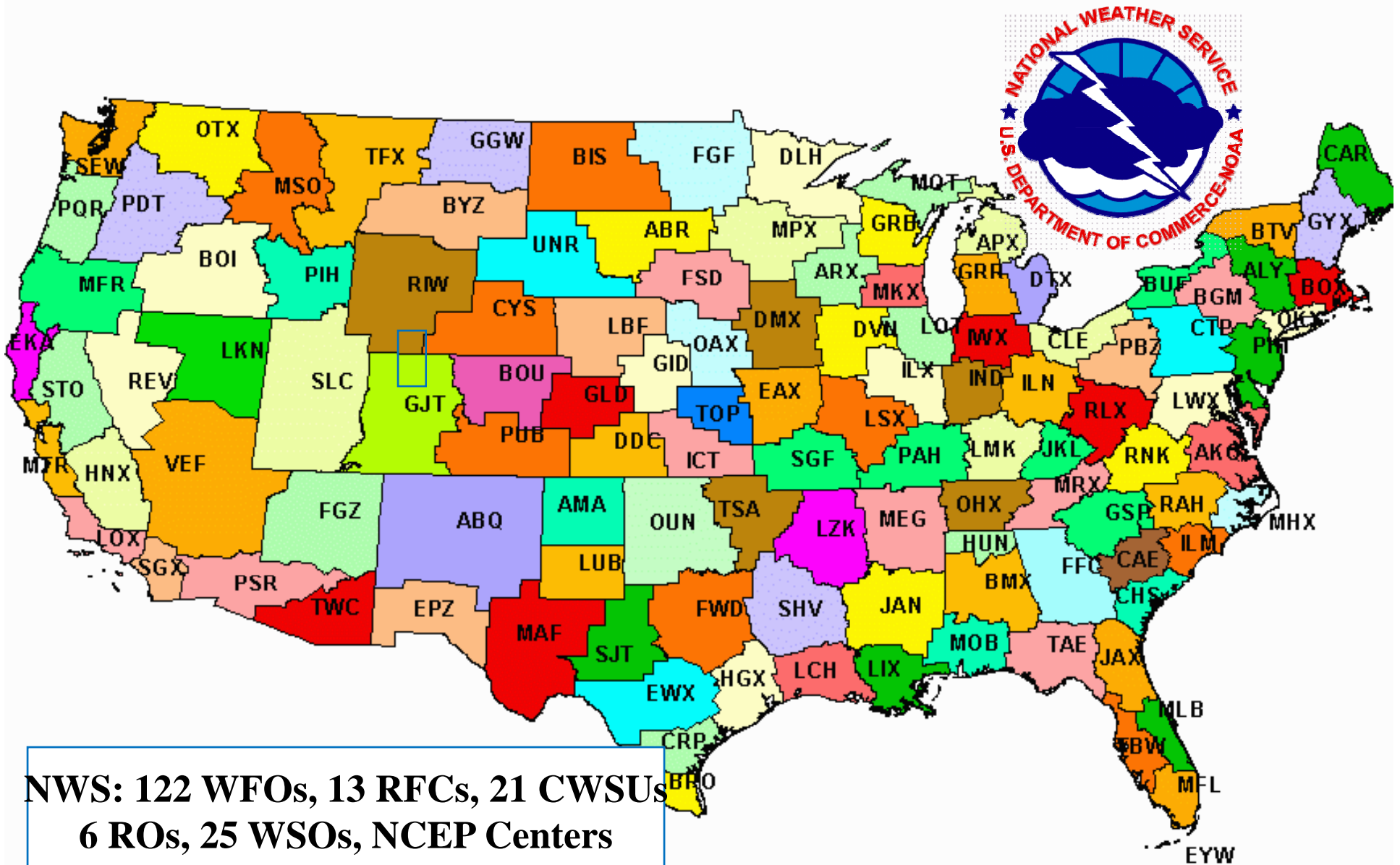
...in collaboration with our federal and non-federal partners

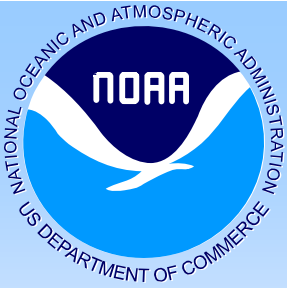
## USDM Listserve Participants (as of January 24, 2007)





# Leveraging the strength of the national network of *nearby* National Weather Service Offices





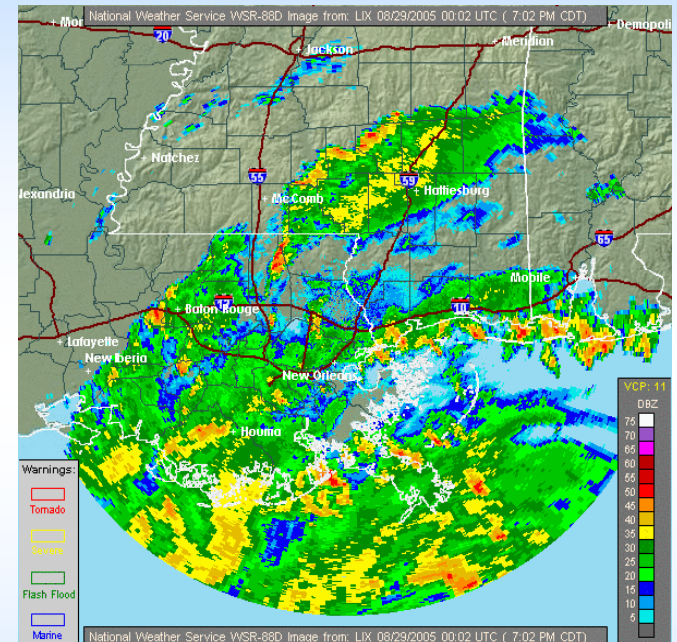
# National Weather Service provides climate services



- **Local NWS Offices** deliver climate services in collaboration with state climatologists, Regional Climate Centers, RISA, academia, water & river authorities and the public/private sector.
- Services based on **local and regional impacts and needs** (i.e. **drought, agriculture, fire weather, water use/hydrology**, etc.)
- Products available on NWS internet in **text** format and **graphics** (including **GIS**)

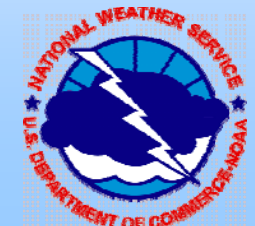
# Learn how to maximize the benefits of your GIS-based NWS radar network...its there for you

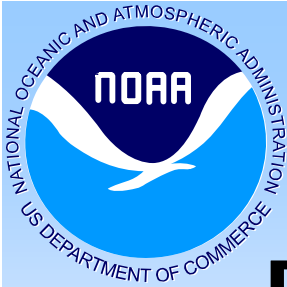
- National Weather Service WFO GIS radar graphics include the latest **watches and storm-based warning boxes** right on the radar loops.
- The NWS GIS radar gives you the distance and direction of approaching weather to any geographic point of interest to you.
- Our data gives you a running tally of **local rainfall amounts**.
- You can superimpose our radar data unto your own GIS EM awareness and response program.



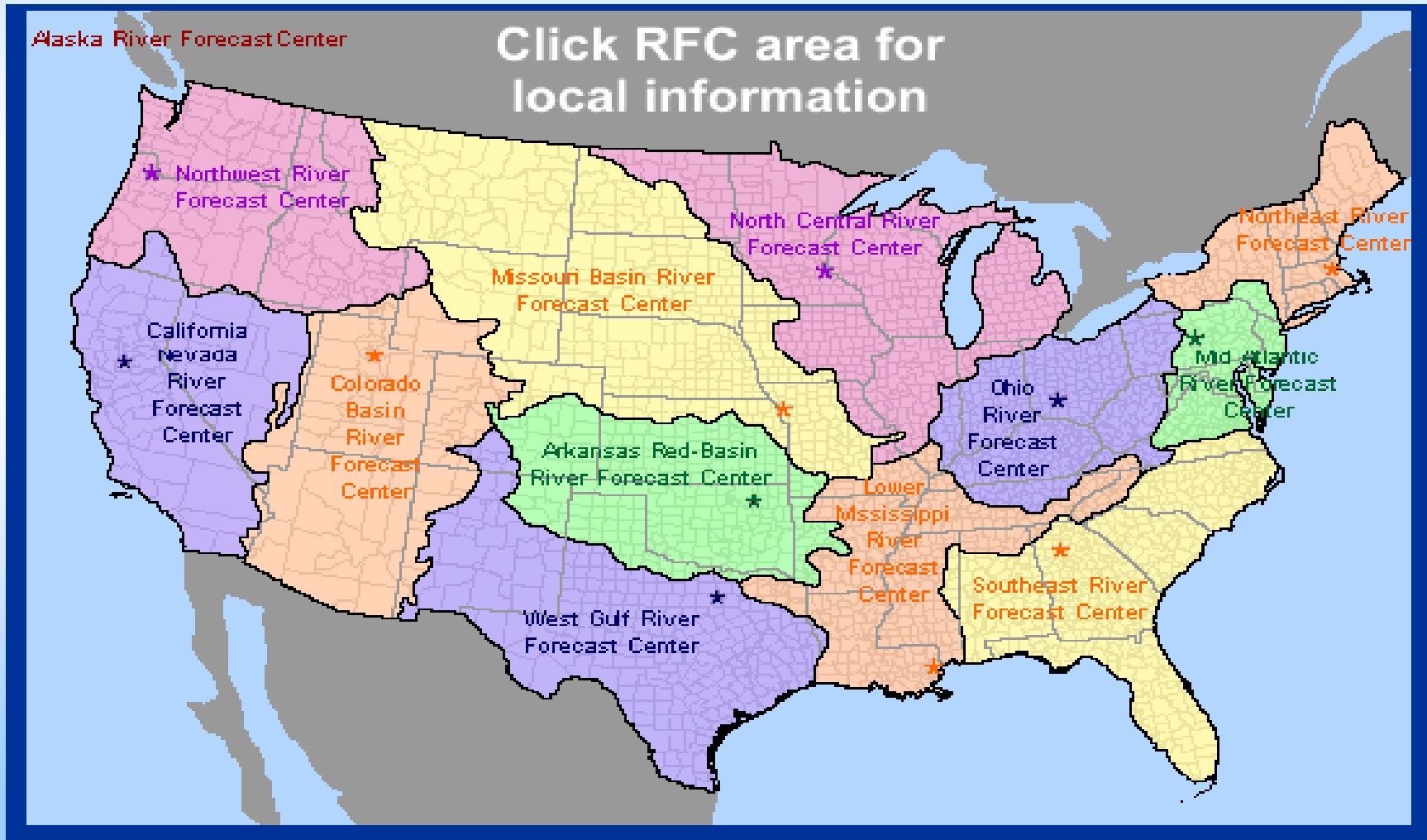
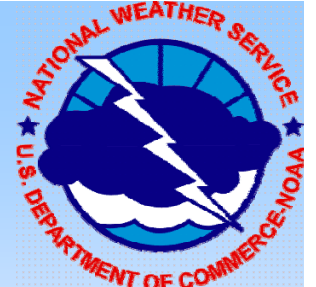
Example of NWS radar & warnings in Google Earth

[www.SRH.weather.gov](http://www.SRH.weather.gov)





# The National Weather Service role with its River Forecast Center Network...





# National GIS-based Precipitation Analysis Tool

Images

Download

About NWS  
Precip Analysis

Other Useful  
Information

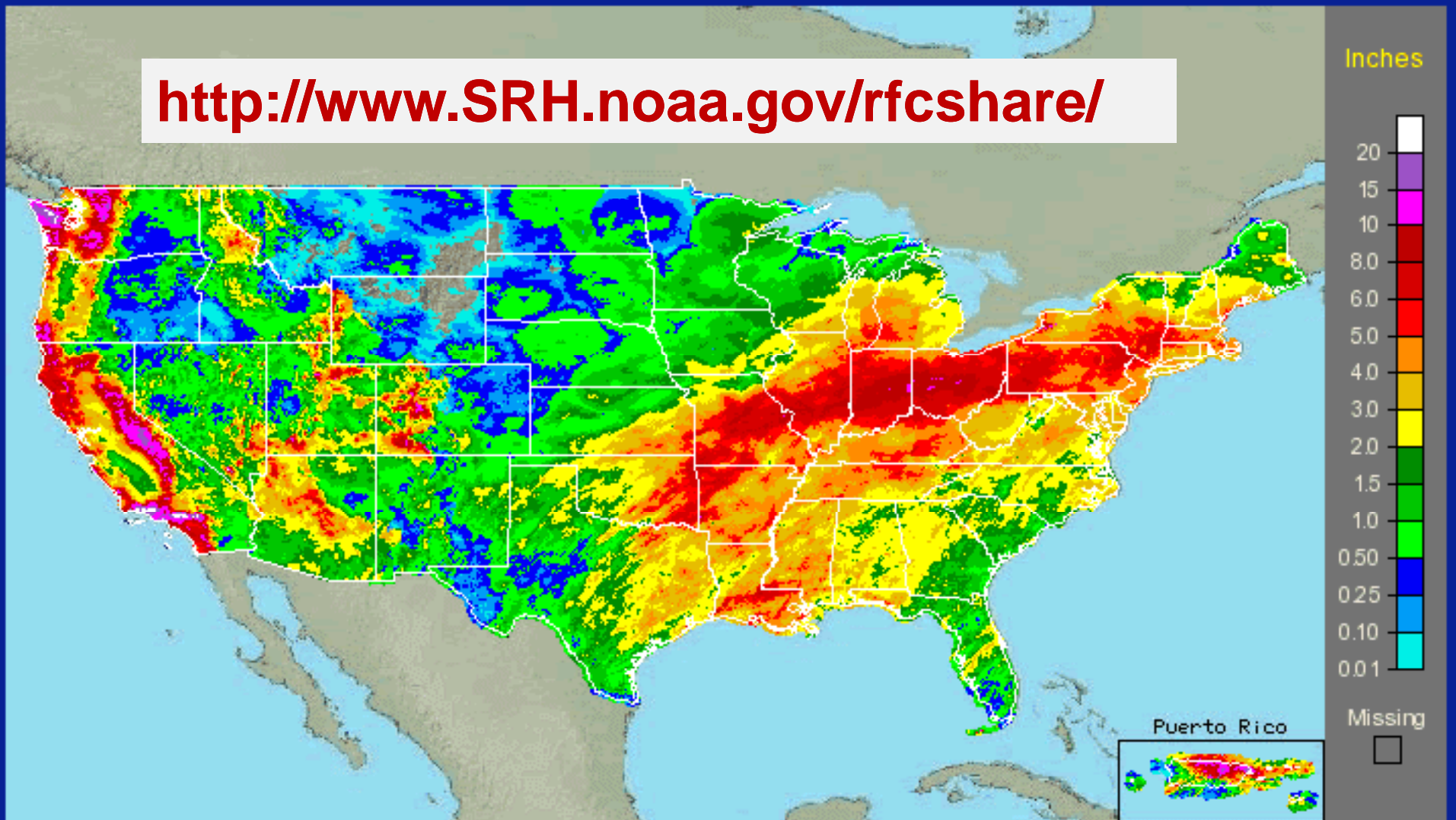
Survey &  
Feedback

Original  
Precip Analysis

Continental United States  
January, 2005 Monthly Observed Precipitation

*Click on the image to zoom in  
Click on "States" to zoom out*

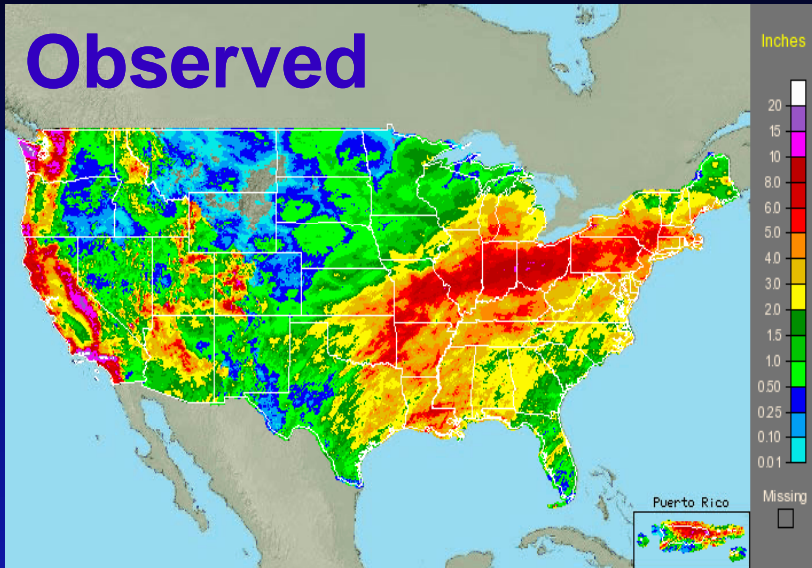
<http://www.SRH.noaa.gov/rfcshare/>





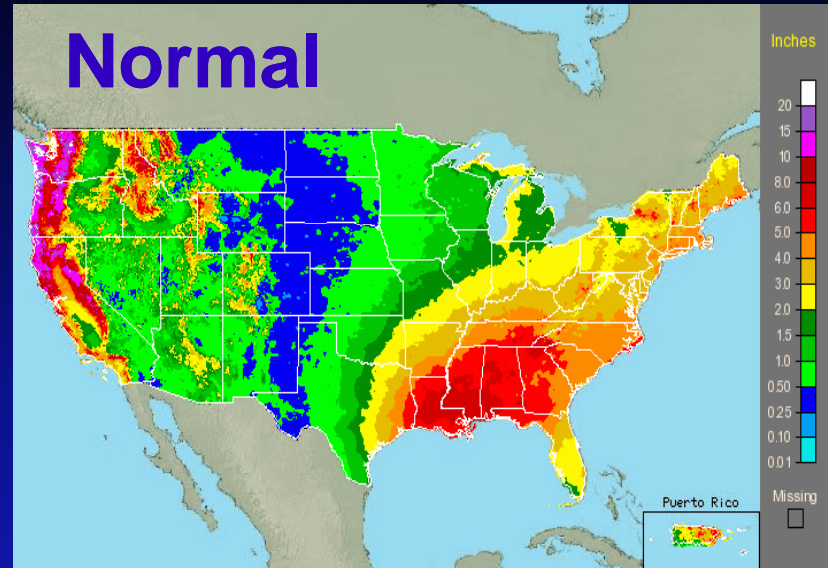
# Our GIS national precip analysis...

## Observed



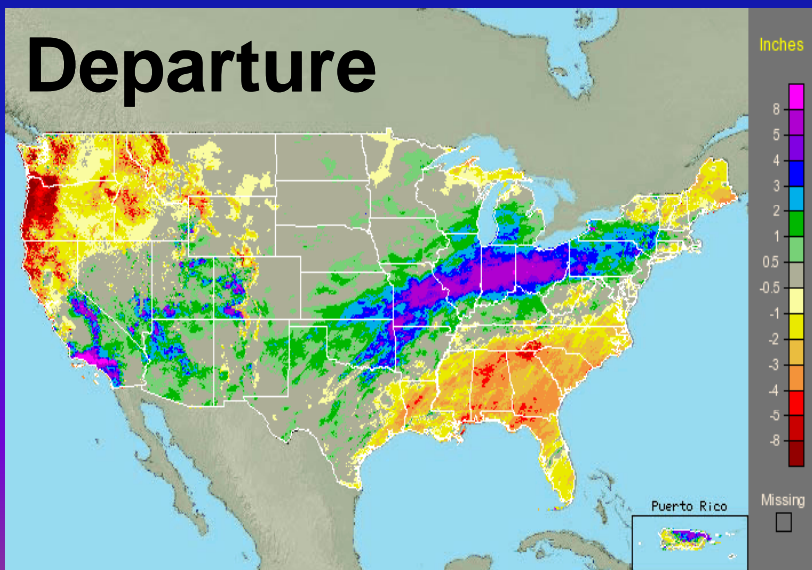
Continental United States  
January, 2005 Monthly Observed Precipitation

## Normal



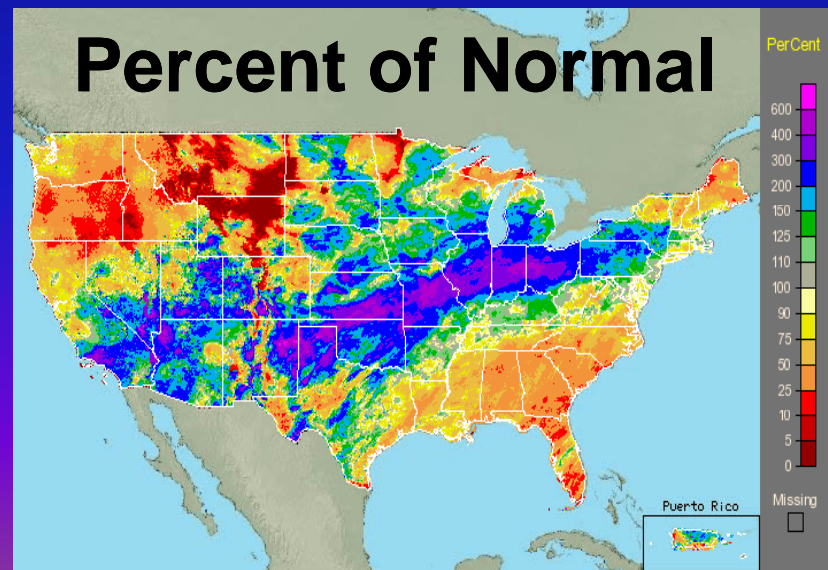
Continental United States  
January, 2005 Monthly Normal Precipitation

## Departure

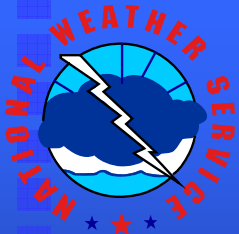


Continental United States  
January, 2005 Monthly Departure from Normal Precipitation

## Percent of Normal



Continental United States  
January, 2005 Monthly Percent of Normal Precipitation



# New Radar Technology

## ■ Current Radar Enhancements

- ◆ Improved elevation scans
- ◆ Faster scans (from 6 to 4 mins)

## ■ Dual-Pol Radar (*up to 3 yrs*)

- ◆ Improved resolution, storm structure imaging & velocity data
- ◆ Longer severe weather leadtimes
- ◆ Improved precipitation detection and flood warning lead-times

## ■ Phased Array Doppler (*10+ yrs*)

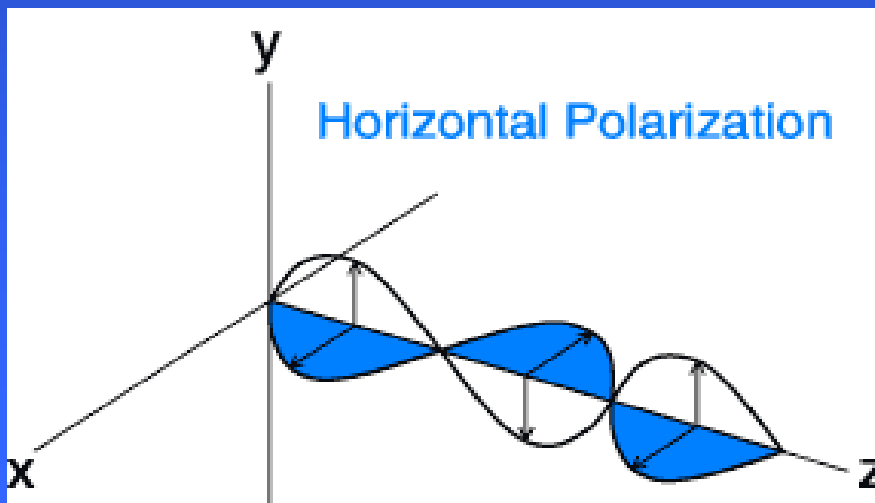
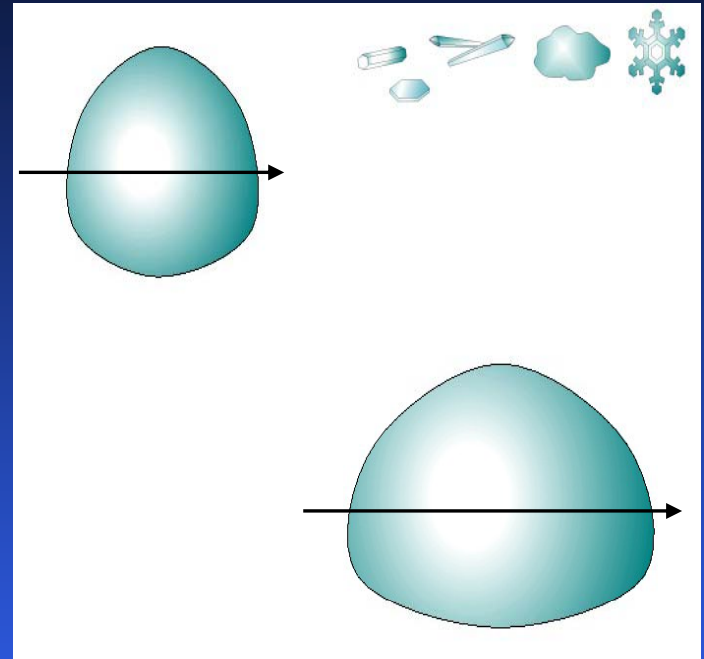
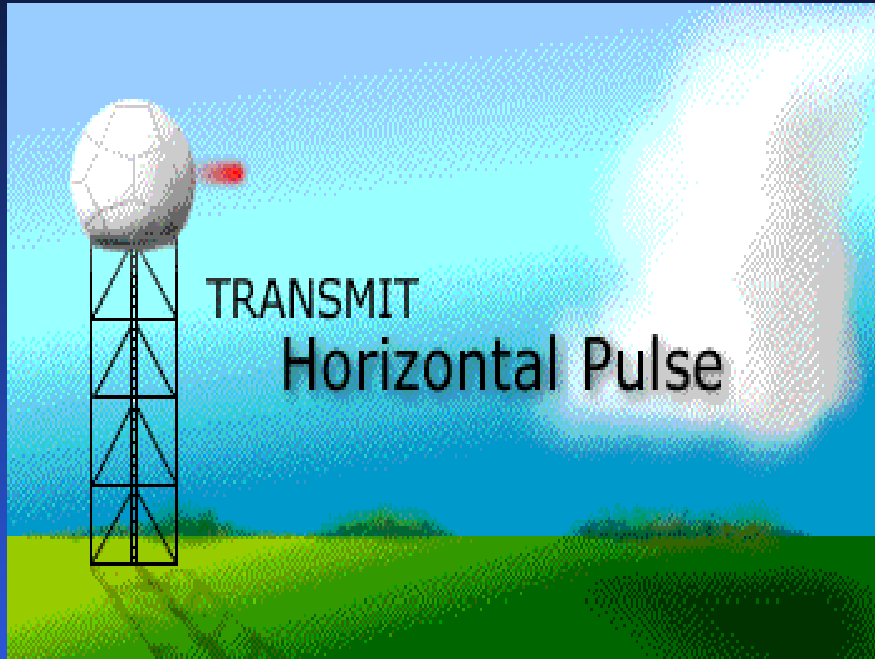
- ◆ Less than a minute scans adds 4 mins to tornado lead-times.
- ◆ better resolution and much more!





NWS Southern Region

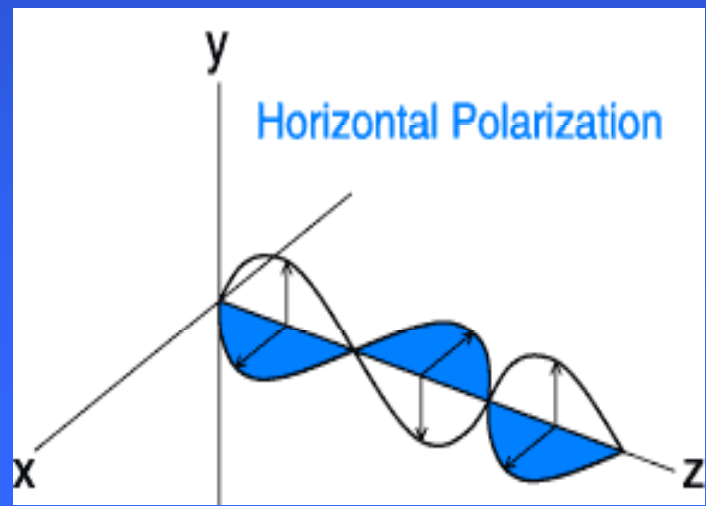
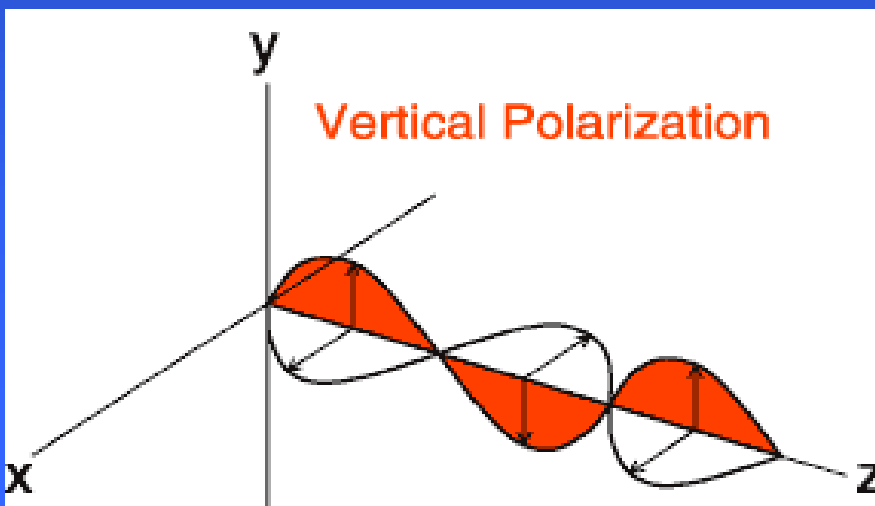
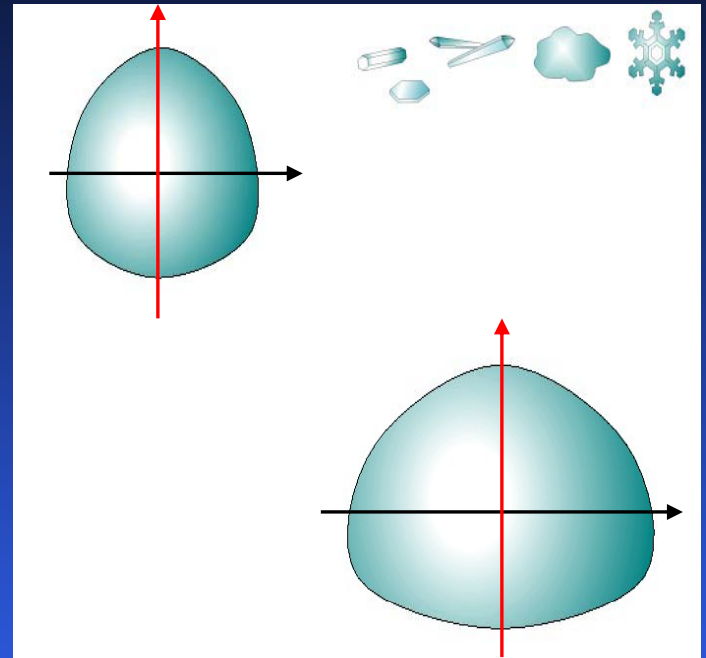
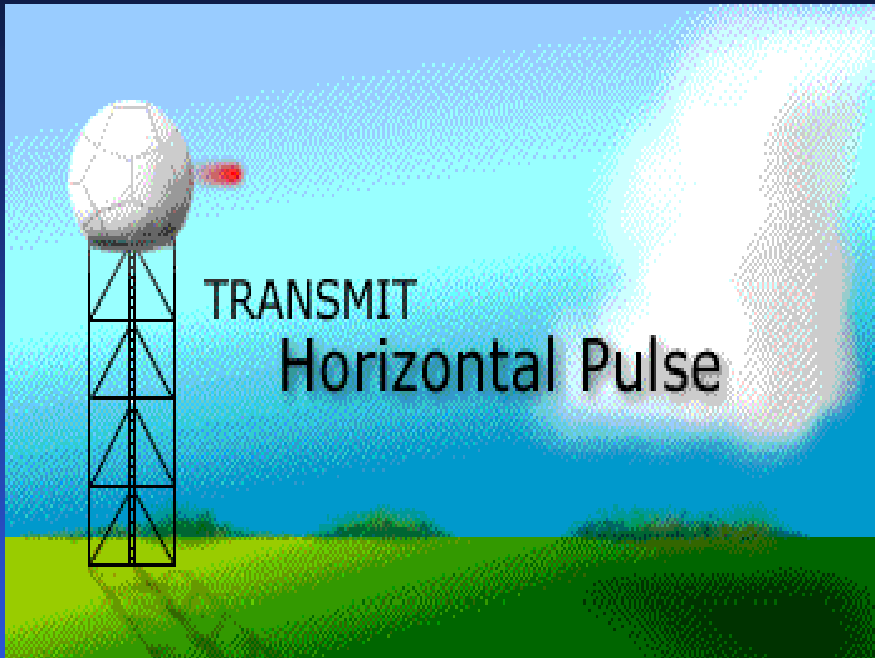
# Current WSR-88D Radar





NWS Southern Region

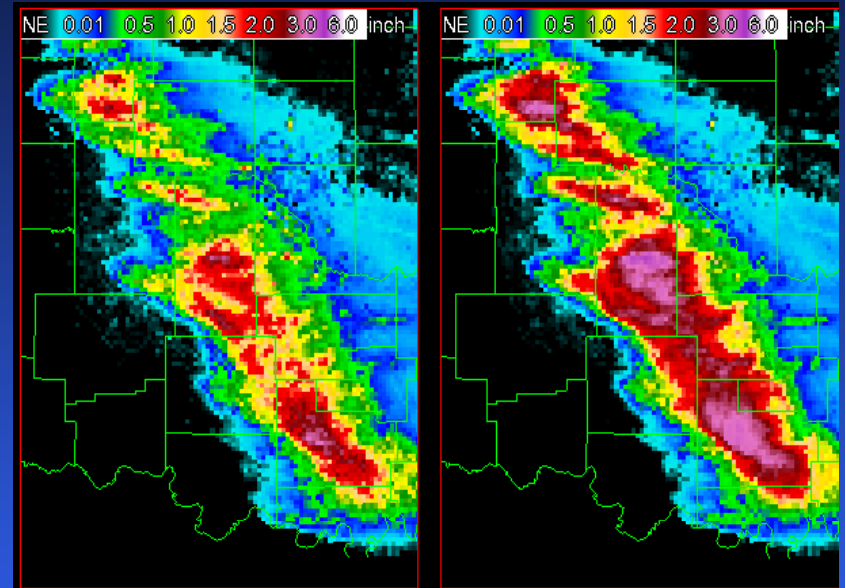
# Dual-polarization Radar





# Dual Polarized Doppler Radar

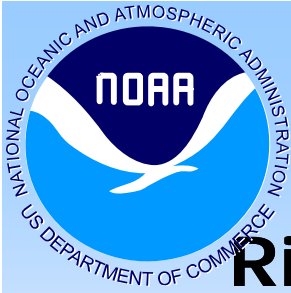
- **Dual- Pol results demonstrate much improvement** (*NSSL documented reports*):
  - ◆ **Finer Imaging** (see images) **better data**
  - ◆ **Rainfall Estimation**
  - ◆ **Pinpoint tornado location**
  - ◆ **Much more...**



Dual-Pol WSR-88D 1-hr rainfall est. (left) vs. legacy WSR-88D estimate (right).

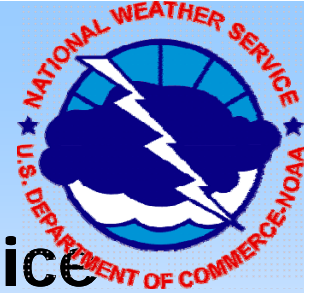
The right-hand image was a significant overestimate but the Dual-Pol product provided a much better estimate.





# The National Weather Service

Issues this from it's Southeastern  
River Forecast Center as a relevant service  
tailored for its local, state, and regional users

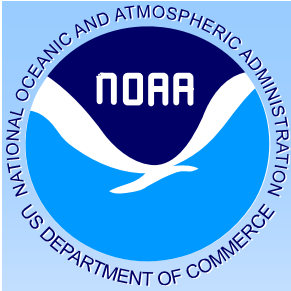


## Water Resources Outlook

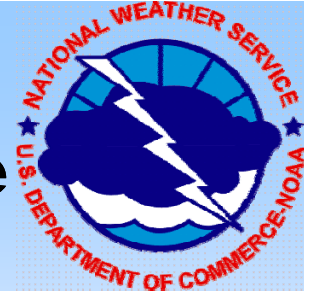
Informational Summaries by  
State on Water Resources  
across the Southeastern  
United States



Provided by the  
Water Resource Team  
Southeast River Forecast Center  
National Weather Service



Many such relevant National Weather Service products can be issued by the RFC and/or the local WFO and by as many as 165 other NWS offices with products tailored to their local users' needs!!



National Weather Service Forecast Office

Peachtree City, GA

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News

Organization

Contact us

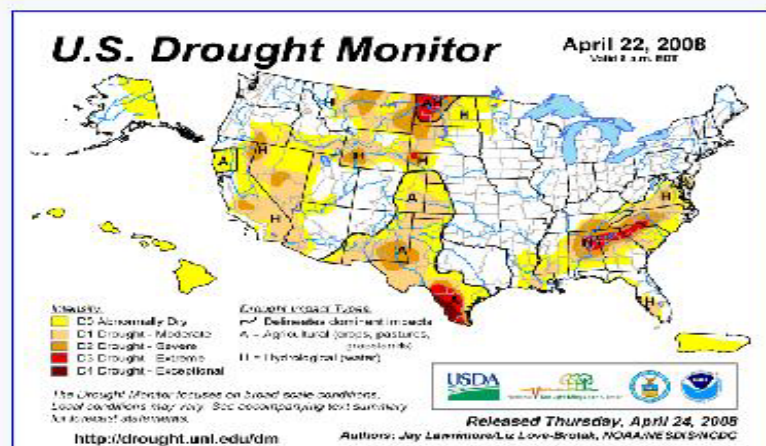
Search

S

## Drought Situation in Georgia...

... DROUGHT CONTINUES ACROSS NORTH AND CENTRAL GEORGIA ..

[Hydrologic Outlook](#) from NWS FFC Senior Hydrologist Kent Frantz



[Click map for details](#)

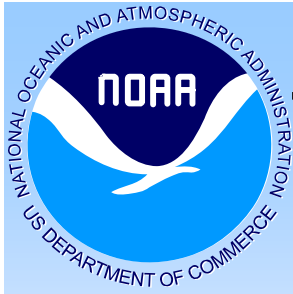
### Additional Data

- [Georgia Lake Levels](#)
- [Current Water Resources](#)
- [Soil Moisture Anomaly](#)
- [Crop Moisture Index](#)
- [Palmer Index](#)
- [Fire Danger Forecast](#)
- [Rainfall Deficit/Surplus YTD](#)

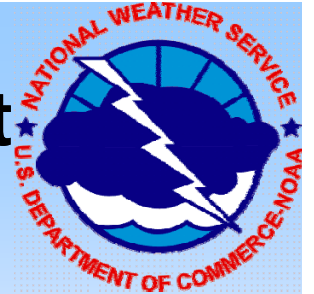
Visit our main  
[Rainfall Resources Page](#)

Build your own  
[Climate Summary Map](#)





# The NWS internet portal is the most used dynamic ".gov" and links to the NIDIS Drought Portal



Portal Home | Log In | Contact Us | Text-Only

Search:

## Navigate drought.gov

- ▶ What is NIDIS?
- ▶ Current Drought
- ▶ Forecasting
- ▶ Impacts
- ▶ Planning
- ▶ Education
- ▶ Research

## Area Information

Select State...

Select Region...

## Maps & Tools

▶ GIS Resources

## Welcome to drought.gov!



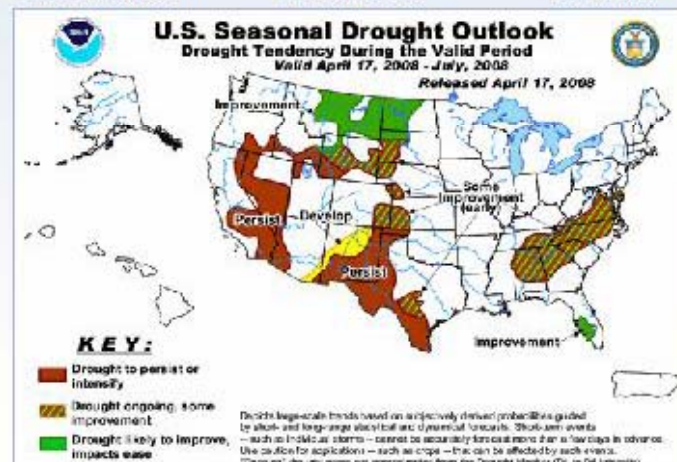
Where are Drought Conditions Now?



How is the Drought Affecting Me?



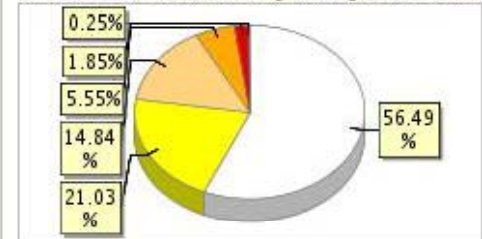
Will the Drought Continue?



## Drought Conditions

% Area for U.S., including, AK, HI & PR (As of 4.22.2008)

Info Source: National Drought Mitigation Center

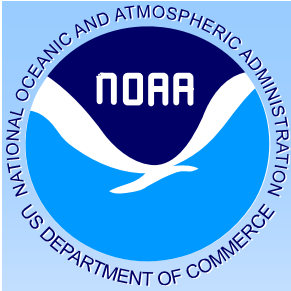


- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

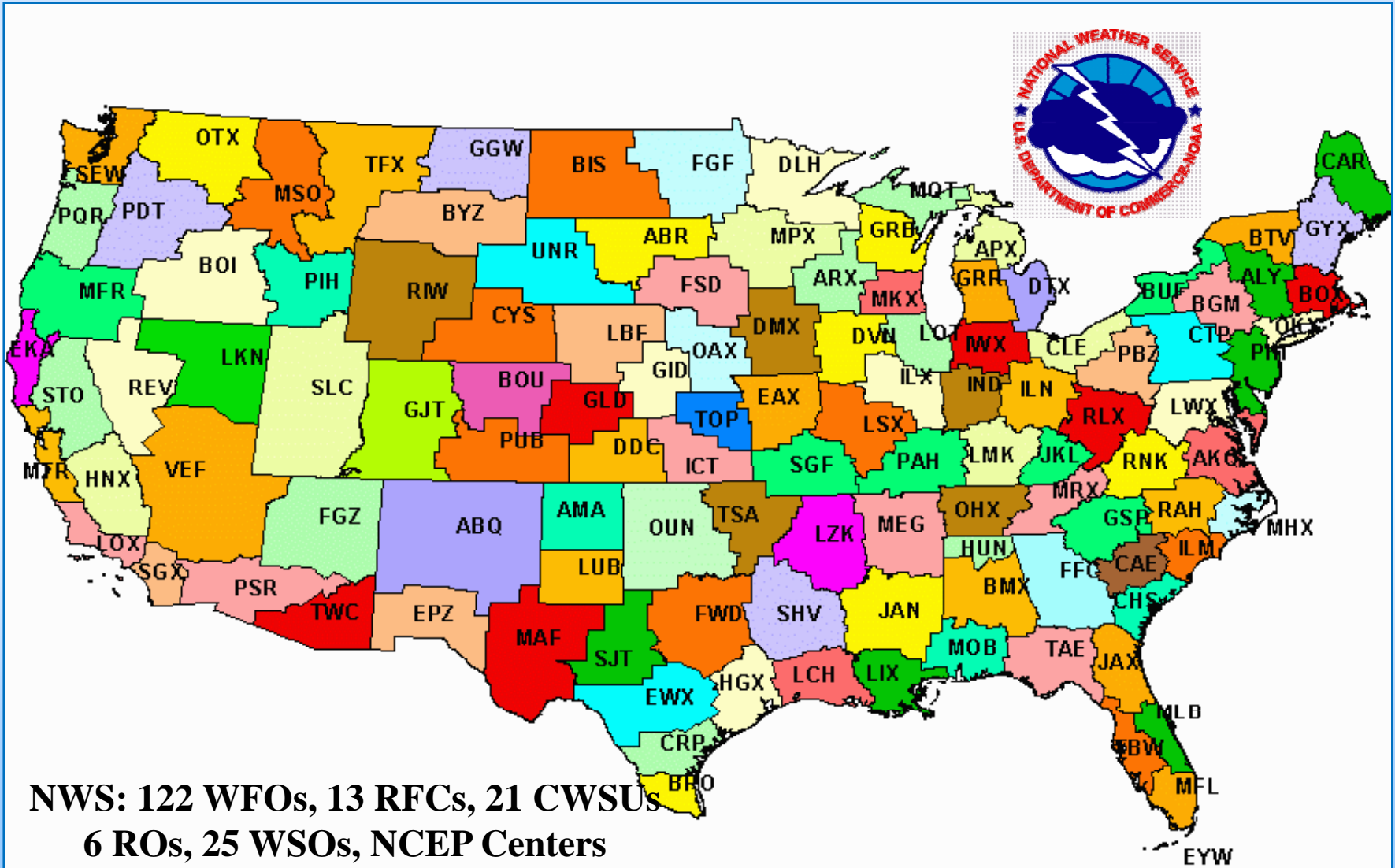
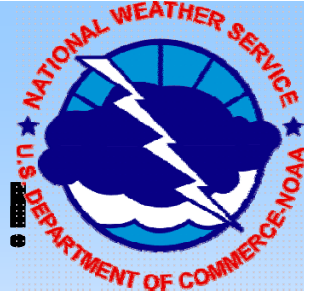
View Time Series - Last 12 months

## What's New

\*\* drought.gov - New Release! \*\*



# Government closest to the people ..indeed.. serves best !



NWS: 122 WFOs, 13 RFCs, 21 CWSUs  
6 ROs, 25 WSOs, NCEP Centers

*“A nation committed to understanding  
drought and climate variability  
**avoids** having to learn through tragedy”*

Bill Proenza, Regional Director  
National Weather Service, Southern Region

**[www.SRH.noaa.gov](http://www.SRH.noaa.gov)**

Click: **“Welcome from the Director”**

Click under presentations:

**“NIDIS Southeastern Workshop – 04/29/08”**

